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### PATENT ABSTRACTS OF JAPAN

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(71)Applicant:

SUMITOMO RUBBER IND LTD

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(72)Inventor:

ONUKI MASAHIDE YOSHIDA MAKOTO

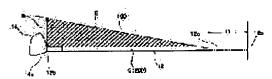
(54) GOLF CLUB SHAFT, AND GOLF CLUB USING THE SAME

### (57)Abstract:

PROBLEM TO BE SOLVED: To make the face surface of a club head twist at the time of an impact so that the face surface may face the direction in which a ball should be shot (so that the face surface may squarely confront with the ball), and make the ball fly straight in the aimed direction.

SOLUTION: At least one part is formed of a material having an anisotropy, and at the same time, the fiber angle and/or the orientation angle of the material having the anisotropy are made different partially in the circumferential direction of the shaft, and also, at least at one part in the thickness direction, and the geometrical main shaft G and the elastic main shaft E of the shaft 12 are shifted, and when the flat surface

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which is in parallel with the crossing line formed by the face surface 14a of a club head 14 and a horizontal surface, and includes the geometrical main shaft G of the shaft 12 is made a specified flat surface, the elastic main shaft E of the shaft under a state wherein approx. 200 mm from the grip side end of the shaft 12 is fixed, is set in a such a manner that a flat surface including the elastic main shaft E and the geometrical main shaft G, and the specified flat surface may cross at  $45-90^{\circ}$ .

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